

<b>Examiner-Initiated Interview Summary</b>	<b>Application No.</b> 10/614,527	<b>Applicant(s)</b> VAN OPDORP, DAMON GERARD	
	<b>Examiner</b> Michael D. Pham	<b>Art Unit</b> 2167	

**All Participants:**

(1) Michael D. Pham.

(2) \_\_\_\_\_

**Status of Application:** \_\_\_\_\_

(3) Richard J. Gregson (attn. 41804).

(4) \_\_\_\_\_

**Date of Interview:** 10/24/07

**Time:** \_\_\_\_\_

**Type of Interview:**

- ☒ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

**Exhibit Shown or Demonstrated:** ☐ Yes ☐ No

If Yes, provide a brief description:

**Part I.**

Rejection(s) discussed:

Claims discussed:

*Amendments to claims 1, 24, and 46*

Prior art documents discussed:


**Part II.**

**SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:**

*Proposed amendments were faxed in order to put the case into condition for allowance. Applicant's representative accepted amendments.*

**Part III.**

- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.  
☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

  
(Examiner/SPE Signature)

\_\_\_\_\_  
(Applicant/Applicant's Representative Signature – if appropriate)

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## Fax Cover Sheet

Date: 18 Oct 2007

To: Richard J. Gregson (attn. 41,804)	From: Michael D. Pham
Application/Control Number: 10/614,527	Art Unit: 2167
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## Comments:

Attached are proposed amendments to put the claims into condition for allowance. Please let me know whether or not the proposed amendments are accepted by Monday October 22, 2007; so that an examiner's amendment may be made.

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Number of pages 12 including this page

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**Proposed amendment****Claim 1:**

A computer implemented method for a primary application to provide an indication of the integrity of a database including the steps of:

- i. obtaining a first reference reduced representation by:
  - a. applying a process to obtain first schema metadata representative of a database structure of a database [[from the secondary application]], where the first schema metadata is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;
  - b. creating the first reference reduced representation of the first obtained schema metadata using an algorithm, where the algorithm is a hash function selected from the set of MD5 (Message-Digest algorithm 5) and CRC32 (Cyclic redundancy check 32); and
  - c. storing the first reference reduced representation by the embedding the first reference reduced representation within a primary application configuration file;
- ii. during execution of [[a]] the primary application, applying [[the]] a process to obtain second schema metadata representative of the database structure of the same database[[from the secondary application]], where the second schema metadata is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;

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- iii. creating a second reduced representation of the second obtained schema metadata using the algorithm;
- iv. comparing the stored first reference reduced representation with the created second reduced representation so as to provide an indication of the integrity of the database by determining whether the database structure changed during a time when the first reference reduced representation and second reduced representation were obtained; and
- v. controlling execution of the primary application dependent on the indication, where the execution of the primary application is controlled by the primary application sending an error message to one selected from the set of a user of the primary application, a manager of the primary application, a manager of the database and the database
- vi. requesting a schema stability lock to guarantee that the schema of the database does not change between subsequent database integrity verifications.

**Claims 2-5 (cancelled)****Claim 6 (amended):**

The method as claimed in claim [[2]] 1, wherein the algorithm is a lossless compression algorithm.

**Claim 7(amended):**

The method as claimed in claim 6, wherein the lossless compression algorithm is one selected from the set of zip, gzip, and bzip2.

**Claim 8 (amended):**

The method as claimed in claim [[2]] 1, wherein the first reference reduced representation is stored by embedding the representation within the primary application.

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**Claim 9 (cancelled):**

**Claim 10 (amended):**

The method as claimed in claim [[2]] 1, wherein step (i) is repeated before (ii) to (v) at least one time when an expected change occurs to the schema metadata in the database.

**Claim 11 (amended):**

The method as claimed in claim [[2]] 1, wherein the process includes organizing the extracted schema metadata using a nested and determinable method.

**Claim 12 (amended):**

The method as claimed in method 11, wherein the nested and determinable method is by alphabetical listing of the schema metadata elements.

**Claim 13 (amended):**

The method as claimed in claim 11, wherein the nested and determinable method is by default database order of the schema metadata elements.

**Claim 14 (amended):**

The method as claimed in claim 11, wherein the nested and determinable method is by creation date order of the schema metadata elements.

**Claim 15 (amended):**

The method as claimed in claim 11, wherein the nested and determinable method is by table owner of the schema metadata elements.

**Claim 16 (amended):**

The method as claimed in claim [[2]] 1, wherein the execution of the primary application is controlled by halting execution of the primary application.

**Claim 17-18 (cancelled)**

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**Claim 19 (amended):**

The method as claimed in claim [[2]] 1, wherein the process obtains all available schema metadata.

**Claim 20 (amended):**

The method as claimed in claim [[2]] 1, wherein the process only obtains the schema metadata which would affect the primary application if that schema metadata were to change.

**Claim 21 (amended):**

The method as claimed in claim [[2]] 1, wherein the process utilizes SQL92 standard to obtain the schema metadata from the database.

**Claim 22 (amended):**

The method as claimed in claim [[2]] 1, wherein the process utilizes the database's API to obtain the schema metadata from the database.

**Claim 23 (amended):**

The method as claimed in claim 22, wherein the database's API is a java database API.

**Claim 24 (amended):**

A computer system for providing an indication of of ~~[[the]]~~ integrity of one or more databases for a plurality of applications including:

~~[[i]]~~1. a plurality of applications ~~[[adapted to carry out the method of claim 1]]~~ stored in memory and executed by a processor to execute the steps of:

i. obtaining a first reference reduced representation by:



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a. applying a process to obtain first schema metadata representative of a database structure of a database, where the first schema metadata is schema metadata that is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;

b. creating the first reference reduced representation of the first obtained schema metadata using an algorithm, where the algorithm is a hash function selected from the set of MD5 (Message-Digest algorithm 5) and CRC32 (Cyclic redundancy check 32); and

c. storing the first reference reduced representation by embedding the first reference reduced representation within a primary application configuration file;

ii. during execution of the primary application, applying a process to obtain second schema metadata representative of the database structure of the same database, where the second schema metadata is the schema metadata that is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;

iii. creating a second reduced representation of the second obtained schema metadata using the algorithm;

iv. comparing the stored first reference reduced representation with the created second reduced representation so as to provide an indication of the integrity of the database by determining whether the database structure changed during a time when the

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first reference reduced representation and second reduced representation were obtained;

and

v. controlling execution of the primary application dependent on the indication, where the execution of the primary application is controlled by the primary application sending an error message to one selected from the set of a user of the primary application, a manager of the primary application, a manager of the database and the database

vi. requesting a schema stability lock to guarantee that the schema of the database does not change between subsequent database integrity verifications;

[[ii]] II. a database [[adapted to]] configured to receive requests for the schema metadata from the plurality of applications and to transmit schema metadata to the plurality of applications dependent on said indication.

**Claims 25-27 (cancelled)**

**Claim 28 (amended):**

The system as claimed in claim 24, wherein reduced representations are calculated using a lossless compression algorithm.

**Claim 29 (amended):**

The system as claimed in claim 28, wherein the lossless compression algorithm is one selected from the set of zip, gzip, and bzip2.

**Claim 30 (amended):**

The system as claimed in claim 24, wherein each previously calculated reduced representation is stored by embedding the representation within its associated application.

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**Claim 31 (cancelled):**

**Claim 32 (amended):**

The system as claimed in claim 24, wherein each schema metadata is organized using a nested and determinable method before its reduced representation is calculated.

**Claim 33 (amended):**

The system as claimed in claim 32, wherein the nested and determinable method is by alphabetical listing of the schema metadata elements.

**Claim 34 (amended):**

The system as claimed in claim 32, wherein the nested and determinable method is by default database order of the schema metadata elements.

**Claim 35 (amended):**

The system as claimed in claim 32, wherein the nested and determinable method is by creation date order of the schema metadata elements.

**Claim 36 (amended):**

The system as claimed in claim 32, wherein the nested and determinable method is by table owner of the schema metadata elements.

**Claim 37 (amended):**

The system as claimed in claim 24, wherein the result of each comparison controls execution of its associated application.

**Claim 38 (amended):**

The system as claimed in claim 37, wherein the execution of the application is controlled by halting execution of the application.

**Claim 39 (cancelled):**

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**Claim 40 (amended):**

The system as claimed in claim 24, wherein the plurality of applications are further [[adapted to]] configured to request a schema stability lock of the one or more databases.

**Claim 41 (amended):**

The system as claimed in claim 24, wherein each application is [[adapted to]] configured to extract all available schema metadata from each database.

**Claim 42 (amended):**

The system as claimed in claim 24, wherein each application is [[adapted to]] configured to extract the schema metadata which would affect the application if that schema metadata were to change.

**Claim 43 (amended):**

The system as claimed in claim 24, wherein each application is [[adapted to]] configured to utilize SQL92 standard to extract the schema metadata from each database.

**Claim 44 (amended):**

The system as claimed in claim 24, wherein each application is [[adapted to]] configured to utilize the database's API to extract the schema metadata from each database.

**Claim 45 (amended):**

The system as claimed in claim 44, wherein the database's API is a Java database API.

**Claim 46 (amended):**

A system comprising a processor, memory, and verification engine for providing an indication of the integrity of a database for an application [[wherein]] comprising:

[[I]] I. an application;

[[ii]] II. a stored reduced representation of schema metadata representative of the structure of a database; and

[[iii]] III. a verification engine which upon connection to a database executes the

[[method of claim 1]] steps of:

i. obtaining a first reference reduced representation by:

a. applying a process to obtain first schema metadata representative of a database structure of a database, where the first schema metadata is schema metadata that is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;

b. creating the first reference reduced representation of the first obtained schema metadata using an algorithm, where the algorithm is a hash function selected from the set of MD5 (Message-Digest algorithm 5) and CRC32 (Cyclic redundancy check 32); and

c. storing the first reference reduced representation by embedding the first reference reduced representation into a primary application or within a primary application configuration file;

ii. during execution of the primary application, applying a process to obtain second schema metadata representative of the database structure of the same database, where the second schema metadata is the schema metadata that is selected from the set of tables, columns in tables, datatypes of columns, lengths of columns, custom database data

types foreign keys, constraints, stored procedures, views, triggers, indices, and scheduled jobs;

iii. creating a second reduced representation of the second obtained schema metadata using the algorithm;

iv. comparing the stored first reference reduced representation with the created second reduced representation so as to provide an indication of the integrity of the database by determining whether the database structure changed during a time when the first reference reduced representation and second reduced representation were obtained;  
and

v. controlling execution of the primary application dependent on the indication, where the execution of the primary application is controlled by the primary application sending an error message to one selected from the set of a user of the primary application, a manager of the primary application, a manager of the database and the database

vi. requesting a schema stability lock to guarantee that the schema of the database does not change between subsequent database integrity verifications.

**Claim 47-48 (cancelled)**

**Claim 49 (amended):**

The system as claimed in claim 46, wherein the stored reduced representation is stored by embedding the representation within the application.

**Claim 50 (amended):**

The system as claimed in claim 48, wherein each schema metadata is organized using a nested and determinable method before its reduced representation is calculated.

**Claim 51 (amended):**

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The system as claimed in claim 46, wherein the application is controlled by halting execution of the application.

**Claim 52-55 (cancelled)**